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## FACSIMILE COVER SHEET

**TO:** Kevin K. Pyo  
Trademark Examiner  
U.S. Patent and Trademark Office

**FROM:** John A. Krause

**RE:** U.S. Patent Appln. No.: 10/611,929  
Group Art Unit: 2878  
Our Ref.: 03500.017368.

**FAX NO.:** (703) 872-9306

**DATE:** February 7, 2005 **NO. OF PAGES:**  
(including cover page)

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03500.017368.

PATENT APPLICATION

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: ) Examiner: Kevin K. Pyo  
 NOBUYUKI UCHIYAMA )  
 Application No.: 10/611,929 ) Group Art Unit: 2878  
 Filed: July 3, 2002 )  
 For: IMAGE READING APPARATUS ) February 7, 2005

Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

**DUPLICATE OF AMENDMENT FILED  
 BY CERTIFICATE OF MAIL ON JANUARY 5, 2005, AND  
REQUEST FOR EXTENSION OF TIME**

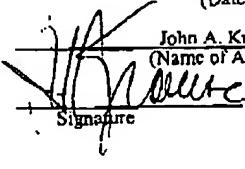
Sir:

It appears that the above-identified Amendment filed in this application by Certificate of Mail on January 5, 2005, in response to an Office Action dated October 5, 2004, may have had the pages thereof interspersed with the pages of another Amendment filed the same day with reference to another application. Accordingly, to remedy this apparent problem there is submitted herewith a complete copy of the Amendment related to this application.

## CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being facsimile-transmitted to the United States Patent and Trademark Office (Fax No. 703-872-9306) on:

February 7, 2005  
 (Date of Deposit)

  
 John A. Krause (Reg. No. 24,613)  
 (Name of Attorney for Applicant)

February 7, 2005  
 Date of Signature

Applicant petitions to extend the time for response to the Office Action dated October 5, 2004, to and including February 5, 2005. Please charge the fee required for the extension, to Deposit Account 06-1205.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100 All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
\_\_\_\_\_  
Attorney for Applicant  
John A. Krause  
Registration No. 24,613

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- 2 -

Form #34

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PATENT APPLICATION

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: Kevin K. Pyo
NOBUYUKI UCHIYAMA	)	
	:	Group Art Unit: 2878
Application No.: 10/611,929	)	
	:	
Filed: July 3, 2003	)	
	:	
For: IMAGE READING APPARATUS	)	January 5, 2005

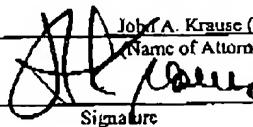
Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

AMENDMENT

Sir:

In response to the Office Action dated October 5, 2004, please amend the above-identified application as follows.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 5, 2005  
 (Date of Deposit)

  
 John A. Krause (Reg. No. 24,613)  
 (Name of Attorney for Applicant)  
John A. Krause  
 Signature  
January 5, 2005  
 Date of Signature

SPECIFICATION AMENDMENTS

Please amend the portion of page 6 encompassing lines 1-15 thereof to change "1302" to -- 1402 -- as follows:

the photointerrupter 1407 is shielded from light. The original 1402 is further conveyed into the interior of the ADF 1202 along the circumference of an original roller 1409 while being nipped between a first conveying roller 1408 and the original roller 1409 and between a supporting unit 1410 and the original roller 1409, and the reading of the image of the original ~~1302~~ 1402 is started at the timing whereat the original 1402 arrives at Mylar 1411. This timing is judged in a predetermined time after the leading edge detection sensor 1406 has detected the leading edge of the original, or if a stepping motor is used as the motor, by predetermined pulses having elapsed after the leading edge sensor 1406 has detected the leading edge of the original.

Please amend the paragraph commencing with "Fig. 5" on page 9 of the Specification by changing "gradation" to read -- resolution -- as follows:

Fig. 5 is a timing chart of a gradation resolution priority mode for illustrating the first embodiment.

## CLAIM AMENDMENTS

Please cancel Claims 1 and 2, and add new Claims 4-8 as follows.

1. - 2. (Cancelled)

3. (Withdrawn) An image reading apparatus comprising:  
a light source for applying light to an image;  
moving means for moving a unit including at least said light source;  
photoelectric converting means for converting reflected light of the  
light source applied to an original into a voltage;  
analog-digital converting means for converting an analog signal  
outputted from said photoelectric converting means into a digital signal; and  
a plurality of amplifying means for amplifying a signal outputted  
from said analog-digital converting means; and  
switch means provided in a power source supplying part of  
predetermined one of the amplifying means, for effecting ON/OFF-control according to a  
reading mode.

4. (New) An image reading apparatus having a first mode for high  
resolution reading and a second mode for high gradation reading, said apparatus  
comprising:  
a light source adapted to apply light to an original image;

a movable reading unit adapted to convert reflected light of said light source applied to the original image into a voltage;

a moving unit adapted to move a reading position of said reading unit at a speed which is the same for the first mode for high resolution reading and the second mode for high gradation reading;

a generator adapted to generate a driving signal for said reading unit, said signal having patterns which are varied in accordance with said reading modes, wherein a frequency of the driving signal in the second mode for high gradation reading is lower than a frequency of the driving signal in the first mode for high resolution reading, and an accumulation time of each of pixels of the driving signal in the second mode for high gradation reading is longer than an accumulation time of each of pixels of the driving signal in the first mode for high resolution reading; and

a converter adapted to convert analog signals from said reading unit to a digital signal having a plurality of numbers of bits, wherein a number of bits in the second mode for high gradation reading is lower than a number of bits in the first mode for high resolution reading.

5. (New) An image reading apparatus according to Claim 4, wherein said reading unit includes a CCD, and the driving signal includes a charge transfer clock signal and a reset clock signal of the CCD.

6. (New) An image reading apparatus according to Claim 5, wherein the driving signal further includes a clock signal to sample a signal for the CCD and a clock signal to sample a reference level.

7. (New) An image reading apparatus according to Claim 4, wherein the moving unit moves a carriage unit including said light source and said reading unit with a motor.

8. (New) An image reading apparatus according to Claim 4, further comprising a processor adapted to execute a shading correction to a digital signal output from said converter.

R E M A R K S

As required in the above-identified Office Action, Applicant has amended Figs. 12-14 so that they are now labeled "Prior Art" as shown on the Replacement Sheet for each of those drawings forwarded herewith by means of a separate communication.

As also required in that Office Action (paragraph 3) the noted Specification changes have been made in the foregoing Amendment.

With respect to the claims, Applicant has cancelled the rejected Claims 1 and 2, and has submitted new Claims 4-8 which are believed to be patentable over the cited prior art. In particular, the invention of Claims 4-8 is characterized in that (i) a frequency of the driving signal in the second mode for high gradation reading is lower than a frequency of the driving signal in the first mode for high resolution reading, (ii) an accumulation time of each of pixels of the driving signal in the second mode for high gradation reading is longer than an accumulation time of each of pixels of the driving signal in the first mode for high resolution reading, and (iii) a number of bits in the second mode for high gradation reading is lower than a number of bits in the first mode for high resolution reading.

In contrast, the cited Ikeda patent discloses an image reading apparatus having an ordinary image reading mode (normal mode) and a fine image reading mode. Specifically, the Ikeda patent discloses a frequency of the driving signal in the fine image reading mode which is higher than that in the ordinary image reading mode, and a pulse width (corresponding to an accumulation time of a pixel) in the fine image reading mode is shorter than that in the ordinary image reading mode. However, as disclosed in Ikeda, in both the ordinary image reading mode and the fine image reading mode, dots per inches

(DPI) and gradation (corresponding to a number of bits) in the second mode for high gradation reading are the same. That is, in Ikeda, even though image data with a high resolution is obtained, the image data is thinned so that the fine image reading mode is not different from the number of data in both the ordinary image reading mode. Accordingly, the cited Ikeda patent does not disclose that a number of bits in the second mode for high gradation reading is lower than a number of bits in the first mode for high resolution reading, as is required in Applicant's claims.

In addition, in Ikeda a fine image reading mode is not a mode with a high DPI but with a short carriage movement distance in a pixel during a charge accumulation. That is, since the fine image reading mode in Ikeda is to read an image as a static image, it is unnecessary to prepare the different numbers of bits in the ordinary image reading mode and the fine image reading mode in Ikeda.

However, as described above, the present invention is characterized in that DPI and a number of bits in the second mode for high gradation reading are different from a number of bits in the first mode for high resolution reading. Thus, by the virtue of the present invention, image information can be distributed to DPI or the number of bits without thinning image information.

For these reasons it is respectfully submitted that all of Claims 4-8 are allowable, and the issuance of a formal Notice of Allowance is solicited.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
\_\_\_\_\_  
Attorney for Applicants  
John A. Krause  
Registration No. 24,613

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